WHAT IS CLAIMED IS:

1. A DC/DC converter comprising:

a switched mode power supply employing gate driven switching devices; and

a flyback converter for providing gate drive voltages to the gate driven switching devices.

2. A DC/DC converter according to claim 1, wherein the flyback converter is self-oscillating.

3. A DC/DC converter according to claim 1, wherein the flyback converter increases or decreases an input voltage to provide gate driven voltages to the gate driven switching devices.

4. A DC/DC converter according to claim 1, wherein the switched mode power supply is a buck regulator.

5. A DC/DC converter according to claim 4, wherein the flyback converter comprises:

a flyback transformer having a primary winding and a secondary winding;

a first switching device for providing a primary voltage to the primary winding of the flyback transformer;

a switching circuit arranged to cyclically turn the first switching device ON and OFF to cyclically apply the primary voltage to the primary of the transformer; and

a voltage control circuit for sensing a secondary voltage at the secondary winding of the flyback transformer, comparing the secondary voltage of the secondary winding to a reference voltage, and generating an error signal to control the magnitude of the primary voltage applied to the primary winding of the flyback transformer.

6. A DC/DC converter according to claim 5, wherein the flyback converter further comprises means for receiving an input voltage, and an under voltage lockout circuit for disabling the switching circuit from turning the first switching device ON and OFF if the input voltage is lower than a predetermined value.

7. A DC/DC converter according to claim 6, wherein the flyback converter further includes means for changing the predetermined value.

8. A DC/DC converter according to claim 5, wherein the flyback converter further includes means for generating a feedback voltage proportional to the output current of the buck regulator and for inputting this feedback voltage control circuit to change the magnitude of the reference voltage.

9. A DC/DC converter according to claim 6, wherein the switching circuit comprises second and third switching devices, the second switching device being arranged to turn the first switching device ON and OFF and the third switching device being arranged to turn the second switching device ON and OFF.

10. A DC/DC converter according to claim 6, wherein the third switching device is connected to the under voltage lockout circuit such that the under voltage lockout circuit turns ON the third switching device if the input voltage is above the predetermined value and turns OFF the third switching device if the input voltage is below the predetermined value.

11. A DC/DC converter according to claim 6, wherein the under voltage lockout circuit comprises an operational amplifier and the input voltage is connected to one of the inputs of the operational amplifier through a voltage divider.

12. A DC/DC converter according to claim 6, wherein the under voltage lockout circuit includes an ON/OFF terminal connected to said one input of the operational amplifier through a resistor.

13. A DC/DC converter according to claim 12, wherein the resistor is connected from the ON/OFF terminal to ground to change.

14. A DC/DC converter according to claim 19, wherein the first and third switching devices are MOSFETs.

15. A DC/DC converter according to claim 14, wherein the second transistor is a bipolar transistor.

16. A DC/DC converter according to claim 14, wherein a resistor is provided for sensing current through the primary winding of the flyback transformer and the resistor is connected to the bipolar transistor.

17. A DC/DC converter according to claim 6, wherein the under voltage lockout circuit includes a comparator.

18. A DC/DC converter according to claim 17, wherein the comparator is an operational amplifier.

19. A DC/DC converter according to claim 5, wherein the voltage control circuit includes an operational amplifier.

20. A DC/DC converter according to claim 5, wherein the voltage control circuit includes an operational amplifier, a reference voltage connected to one input of the operational amplifier and the output voltage of the secondary winding connected to the other terminal of the operational amplifier.

21. A DC/DC converter according to claim 20, wherein the input voltage is connected to another terminal of the operational amplifier through a resistor so that the voltage of the secondary winding of the flyback transformer is decreased as the input voltage increases.

22. A flyback converter comprising:

a flyback transformer having a primary winding and a secondary winding;

a first switching device for providing a primary voltage to the primary winding of the flyback transformer;

a switching circuit arranged to cyclically turn the first switching device ON and OFF to cyclically apply the primary voltage to the primary of the transformer; and

a voltage control circuit for sensing a secondary voltage at the secondary winding of the flyback transformer, comparing the secondary voltage of the secondary winding to a reference voltage, and generating an error signal to control the magnitude of the primary voltage applied to the primary winding of the flyback transformer.

23. A flyback converter according to claim 22, further comprising means for receiving an input voltage, and an under voltage lockout circuit for disabling the switching circuit from turning the first switching device ON if the input voltage is lower than a predetermined value.

24. A flyback converter according to claim 23, further including means for changing the predetermined value.

25. A flyback converter according to claim 23, wherein the switching circuit comprises second and third switching devices, the second switching device being arranged to turn the first switching device ON and OFF and the third switching device being arranged to turn the second switching device ON and OFF.

26. A flyback converter according to claim 25, wherein the third switching device is connected to the under voltage lockout circuit such that the under voltage lockout circuit turns ON the third switching device if the input voltage is above the predetermined value and turns OFF the third switching device if the input voltage is below the predetermined value.

27. A flyback converter according to claim 23, wherein the under voltage lockout circuit comprises an operational amplifier and the input voltage is connected to one of the inputs of the operational amplifier through a voltage divider.

28. A flyback converter according to claim 23, wherein the under voltage lockout circuit includes an ON/OFF terminal connected to said one input of the operational amplifier through a resistor.

29. A flyback converter according to claim 28, wherein a resistor is connected from the ON/OFF terminal to ground to change the predetermined value.

30. A flyback converter according to claim 25, wherein the first and third switching devices are MOSFETs.

31. A flyback converter according to claim 30, wherein the second transistor is a bipolar transistor.

32. A flyback converter according to claim 30, wherein a resistor is provided for sensing current through the primary winding of the flyback transformer and the resistor is connected to the bipolar transistor.

33. A flyback converter according to claim 23, wherein the lockout circuit includes a comparator.

34. A flyback converter according to claim 33, wherein the comparator is an operational amplifier.

35. A flyback converter according to claim 22, wherein the voltage control circuit includes an operational amplifier.

36. A flyback converter according to claim 22, wherein the voltage control circuit includes an operational amplifier, a reference voltage connected to one input of the operational amplifier and the output voltage of the secondary winding connected to the other terminal of the operational amplifier.

37. A flyback converter according to claim 36, wherein the input voltage is connected to another terminal of the operational amplifier through a resistor so that the voltage of the secondary winding of the flyback transformer is decreased as the input voltage increases.

38. A multi-phase buck regulator DC/DC converter comprising:

a plurality of buck regulator power sections, the outputs of which are connected in parallel and connected to an output load circuit; and

a controller for providing pulse width modulation (PWM) signals to each power section, the PWM signals to each power section being shifted by 360°/n from each other, where n the number of buck regulator power sections.

39. A multi-phase buck regulator DC/DC converter according to claim 38, wherein the PWM signals to each power section are in phase with each other.

40. A multi-phase buck regulator DC/DC converter according to claim 39, wherein the PWM signals to each power section are out of phase with each other.

41. A multi-phase buck regulator DC/DC converter according to claim 38, wherein each of the buck regulator power sections includes gate driven switching devices.

42. A multi-phase buck regulator DC/DC converter according to claim 41, further comprising an auxiliary regulator to provide gate drive voltages to the power sections.

43. A multi-phase buck regulator DC/DC converter according to claim 42, wherein the auxiliary regulator can either increase or decrease an input voltage to provide gate drive voltages to the power stages.

44. A multi-phase buck regulator DC/DC converter according to claim 42, wherein the auxiliary regulator lowers the auxiliary voltage as an input voltage to the auxiliary regulator increases.

45. A multi-phase buck regulator DC/DC converter according to claim 42, wherein the auxiliary regulator lowers the auxiliary voltage as an output load current decreases.

46. multi-phase buck regulator DC/DC converter according to claim 42, wherein the auxiliary regulator is a flyback converter.

47. A multi-phase buck regulator DC/DC converter according to claim 46, wherein the flyback converter comprises:

a primary winding and a secondary winding;

a first switching device for providing a primary voltage to the primary winding of the flyback transformer;

a switching circuit arranged to cyclically turn the first switching device ON and OFF to cyclically apply the primary voltage to the primary of the transformer; and

a voltage control circuit for sensing a secondary voltage at the secondary winding of the flyback transformer, comparing the secondary voltage of the secondary winding to a reference voltage, and generating an error signal to control the magnitude of the primary voltage applied to the primary winding of the flyback transformer.

48. A multi-phase buck regulator DC/DC converter according to claim 47, wherein the flyback converter further comprises means for receiving an input voltage, and an under voltage lockout circuit for disabling the switching circuit from turning the first switching device ON and OFF if the input voltage is lower than a predetermined value.

49. A multi-phase buck regulator DC/DC converter according to claim 47, wherein the flyback converter further includes means for changing the predetermined value.

50. A multi-phase buck regulator DC/DC converter according to claim 47, wherein the switching circuit comprises second and third switching devices, the second switching device being arranged to turn the first switching device ON and OFF and the third switching device being arranged to turn the second switching device ON and OFF.

51. A multi-phase buck regulator DC/DC converter according to claim 50, wherein the third switching device is connected to the under voltage lockout circuit such that the under voltage lockout circuit turns ON the third switching device if the input voltage is above the predetermined value and turns OFF the third switching device if the input voltage is below the predetermined value.

52. A multi-phase buck regulator DC/DC converter according to claim 48, wherein the under voltage lockout circuit comprises an operational amplifier and the input voltage is connected to one of the inputs of the operational amplifier through a voltage divider.

53. A multi-phase buck regulator DC/DC converter according to claim 48, wherein the under voltage lockout circuit includes an ON/OFF terminal connected to said one input of the operational amplifier through a resistor.

54. A multi-phase buck regulator DC/DC converter according to claim 53, wherein the resistor is connected from the ON/OFF terminal to ground to change the predetermined voltage.

55. A multi-phase buck regulator DC/DC converter according to claim 50, wherein the first and third switching devices are MOSFETs.

56. A multi-phase buck regulator DC/DC converter according to claim 55, wherein a second transistor is a bipolar transistor.

57. A multi-phase buck regulator DC/DC converter according to claim 55, wherein a resistor is provided for sensing current through the primary winding of the flyback transformer and the resistor is connected to the bipolar transistor.

58. A multi-phase buck regulator DC/DC converter according to claim 47, wherein the flyback converter further includes means for generating a feedback voltage proportional to the output current of the buck regulator power sections and for inputting this feedback voltage control circuit to change the magnitude of the reference voltage.

59. A multi-phase buck regulator DC/DC converter according to claim 48, wherein the under voltage lockout circuit includes a comparator.

60. A multi-phase buck regulator DC/DC converter according to claim 59, wherein the comparator is an operational amplifier.

61. A multi-phase buck regulator DC/DC converter according to claim 47, wherein the voltage control circuit includes an operational amplifier.

62. A multi-phase buck regulator DC/DC converter according to claim 47, wherein the voltage control circuit includes an operational amplifier, a reference voltage connected to one input of the operational amplifier and the output voltage of the secondary winding connected to the other terminal of the operational amplifier.

63. A multi-phase buck regulator DC/DC converter according to claim 62, wherein the input voltage is connected to said other terminal through a resistor so that the voltage of the secondary winding of the flyback transformer is decreased as the input voltage increases.